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Trash Talk: Unraveling Emotional Responses and Behavioral Rationalizations in the wake of Contradicting Evidence

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Abstract

This study serves as a contribution to the green marketing paradigm, specifically under research about promotion of sustainable behaviors such as recycling of household waste. For the past decades, recycling has been exclusively advocated as the “holy grail” for individual contribution towards sustainability, in which pro-recycling promotions have flooded the Norwegian communication channels. However, this research deviates from previous research in the sense that, due to recent developments and disclosures within the recycling industry, offer skepticism towards the alleged sustainable impact of recycling that this paradigm currently lacks. Furthermore, this recent information contradicts many of the previously assumed benefits from recycling, in which this research investigates the rationalization and processing of this contradicting information from a consumer’s perspective. Uncertainty management theory holds that contradicting information in general, is hard for us humans to process in the sense that it can elicit emotional responses such as confusion, lack of credibility in information source, insecurity, a sense of hope and optimism, and/or indifference in an attempt to reconcile the conflicting information. Through in-depth interviews with Norwegian students from various study programs we investigated how our respondents processed the contradicting evidence about recycling, as well as their resulting emotional, attitudinal and/or behavioral alterations. Our findings disclose a range of different emotional responses ranging from negative, to positive, to neutral emotional responses as identified by uncertainty management theory. However, despite differing emotional responses, all of our respondents express that they will continue their recycling behavior regardless of the contradicting evidence. This is further found to be a combination of unyielding unconscious habits, their high trust in government which elicit a hopeful and optimistic attitude for the “recycling problem” to be solved by trusted stakeholders, as well as their generational attitude towards sustainability. In which, younger generations are found to feel more guilt and anxiety for their negative environmental impact than older generations. Where, the biggest barrier to contribute towards sustainability is cost-related. Thus, our respondents perceive recycling to be the “only” sustainable action their budget allows them to partake in, and consequently refuse to acknowledge the contradicting evidence.

Keywords: *green marketing, recycling of household waste, contradicting information, uncertainty management theory, high trust society, sustainable attitude and behavior*

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Best regards,

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1.0 Introduction:

Through decades of pro-recycling campaigns governments have tried to educate their citizens to implement recycling into their individual households in order to contribute in the fight against climate change and for a more sustainable world (Olsen & Haavie, 2020). However, several recent studies show that recycling is not as sustainably sufficient as once perceived. Recycling has been promoted based on optimistic calculations of Co2 emission savings and reuse of recycled materials to reduce climate change and exploitation of natural resources. However, when digging into the intricate factors that the recycling industry is currently facing, the realistic scenario turns out to be quite disappointing. In fact, recycling the waste under our kitchen sinks is proven to be borderline insignificant (Østgårdsgjelten, Valvik & Bjørnestad, 2015). Despite this contradicting evidence, a recent study of the most popular environmental behaviors in Norway, shows that 84 percent of Norwegian consumers are saying they regularly recycle their household waste. However, the same study shows that Norwegians also throw away more trash than almost every other country in Europe. Where the average kilograms of trash per inhabitant in most European countries is 492 kilograms, whilst the average kilograms of trash per inhabitant in Norway is shockingly 739 kilograms (Mullis, 2020; Olsen & Haavie, 2020). Ironically, Norway has been found to be “one of the most affluent, and seemingly “green”, liberal democracies of the world” (Witoszek, 2018). Thus, this study aims to investigate how these “green and liberal” Norwegian consumers will process and rationalize the recent contradicting evidence about recycling. In which, contradictory information in general is hard for us humans to process, in the sense that it does not provide clear information or guidance for us to accurately assign meaning to an object, decide on an appropriate behavior, nor to predict future outcomes (Pan et al., 2020). Furthermore, uncertainty management theory holds that uncertainty arises when “information is unavailable or inconsistent” (Brashers, 2001, p.478). Rising uncertainty further cultivates itself into various emotional reactions such as disbelief, lack of credibility, disappointment, insecurity, hope or optimism, and/or indifference. Which further results in behavioral attempts to overcome the rising uncertainty such as seeking and avoiding information, choosing to adapt to the uncertainty, seeking social support, and/or managing the uncertainty in various forms and shapes

(Brashers, 2001). Thus, this study will analyze consumers' processing and rationalization of the given contradicting information regarding recycling on the factors for which builds the theory of uncertainty management.

Additionally, as Olson (2022) intensively emphasizes, the overall relevance, validity, and limitations of the green marketing paradigm, for which also includes research on promotion of recycling, cannot be established without skeptical viewpoints, empirical challenges, and other-side comparisons. Thus, given the recent inconsistency in information of whether recycling household waste provides the previously assumed environmental benefits or not, the overall research question of this study will delve into the realm of *how such contradictory information will affect Norwegian consumers' perceptions and attitudes of recycling, as well as potential behavior alterations.*

2.0 Literature Review

Green marketing paradigm and recycling practice in Norway:

The industrialization and globalization of the world has given rise to mass consuming societies which subsequently has brought severe changes to our environment. Consequently, since the 1960s, there has been increasing emphasis by governments, environmentalists, media, and academics to find solutions to reduce human damage to the environment (Bengtsson, Alfredsson, Cohen, Lorek & Schroeder, 2018; Brundtland, 1987; Dolan, 2002; Jackson, 2004; Joshi & Rahman, 2015; Ofstad, Westly & Bratelli, 1994; Seyfang & Haxeltine, 2012; United Nations, 2021). Furthermore, studies have found that individual actions play an important role in promoting sustainable consumption, in which one of the most successful attempts of sustainable behavioral change among individuals has been the promotion of recycling (Barr, 2007; Olsen & Haavie, 2020; Hall, Lewis & Ellsworth, 2006; Kollmuss & Agyeman, 2002; Roy, 2020; Schiffman, Kanuk & Hansen, 2012; Scott, 2013; Spaargaren & Van Vliet, 2000). For this reason, extensive research on “green marketing”, and promotion of sustainable behaviors such as recycling has flourished the research paradigm for the past decades. In which, these

studies mainly analyze and argue for important or necessary individual attitudes, behaviors, and/or personality traits related to recycling efforts (Lee, Hayley & Yang, 2019; Refsgaard & Magnussen, 2009), or other influencing factors that altogether should encourage and increase individual recycling practice (Barr, 2007; Biswas, Licata, McKee, Pullig & Daughtridge, 2000; Oskamp, Harrington, Edwards, Sherwood, Okuda & Swanson, 1991; Viscusi, Huber & Bell, 2011). However, as Olsen (2022) points out in his review of the green marketing research paradigm, it currently consists of a seemingly one-sided approach in which exaggerated advocacy of green marketing efforts rules. He further implies that current literature on this subject fails to mention both green marketing failures, downsides, and dark sides. In which, the most obvious one is the general failure of green marketing attempts to persuade larger populations to voluntarily adopt most sustainable technologies and behaviors. The current literature on marketing of recycling is no different. Research regarding this matter almost exclusively revolves around advocating and promoting recycling as the “holy grail” for individual contribution to save our dying planet. However, to our knowledge, there exists no current research with a more critical point of view, or even a tone of skepticism, whether recycling is in fact as environmentally impactful as first assumed.

By recycling, we refer to the reuse or remanufacture of a product or material, which further involves the process in which used products or packaging are collected, cleaned, shredded, melted down, or in some way reduced to recover their base materials. Even though recycling of materials could include virtually anything from building materials to toxic chemicals to fabrics, and so forth, this research will revolve around recycling of generic household waste (Scott, 2013). Household waste is generally defined as “waste generated by normal household activities” such as food waste, paper, glass, metals, and plastic (Dahlén & Lagerkvist, 2010). Furthermore, in Norway, waste regulation is based on the Pollution Control Act 1981, where the Norwegian Ministry of Environment oversees the implementation and regulation of the country’s waste management objectives. Further waste management policies are delegated to the various municipalities where local utility agencies cooperate with private waste and recycling companies to further offer recycling services to Norwegian households (Kipperberg, 2007). Hence, for the past decades,

extensive economical investments in both technology and pro-recycling campaigns have roamed our communication channels to educate the Norwegian people to recycle for a better future. In which, “recycling” has become a generic term known in every Norwegian household (Olsen & Haavie, 2020). Indeed, the Norwegian population view themselves as “world champions” when it comes to recycling practice. However, a recent report of the best recycling countries in the world shows that Norway, in fact, ranks far below the average resource utilization (Mullis, 2020).

Contradicting evidence about recycling:

Recycling has been promoted on the promise of reducing greenhouse gas emissions and use of natural resources by profitably reusing the paper, metals, and plastic waste, and turning them into new raw materials. For instance, previous calculations estimated that the total energy saved from recycling plastic packaging was 13.2 kWh per kilogram. In addition, it is said to reduce Co₂ emissions by approximately 2.7 kilograms per kilogram of recycled plastic packaging (Gront Punkt Norge, n.d). However, according to research by Østgårdsgjeltén, Valvik & Bjørnstad (2015), this perceived reduction of Co₂ emission and profit savings from reusing household materials is proven to be much less than promised. In fact, the recycling and reusing of plastic packaging from household waste only saves 0.09 percent of the total Norwegian Co₂ emissions. This is because the previously estimated Co₂ emission savings ensured by recycled plastics is calculated through the assumption that the plastic is actually being recycled. However, only about 5 percent of all plastics is currently recycled, in large part because it is difficult and expensive to sort (Sullivan, 2022).

Moreover, recycling has been said to ensure that waste materials can be reused and either turned into new things or be utilized for other purposes. For example, once a soda bottle is transported to the waste management facility, it is then washed, melted, granulated, and turned into a new plastic product for further reuse. This process limits the need for production of virgin plastics, which further diminish the use of natural resources such as fossil resources and reduce the amount of plastics in the ocean (Gront Punkt, n.d.). Even though

this might be technically true, the reality is far from that simple. Recent research found that no current plastic meets the threshold to be called "recyclable". Set standards state that plastic must have a recycling rate of 30%, which no plastic has ever been documented to have been recycled and reused even close to that rate. There are now thousands of different types of plastic, and none of them can be melted down together. Plastic also degrades after one or two uses. In fact, the more plastic is reused the more toxic it becomes (Handelens Miljøfond, 2020; Rosenbaum, 2019; Sullivan, 2022). Thus, a more realistic scenario of the soda bottle, is that it most likely will not meet the recyclable standard, thus rather burned, or dumped on a landfill or in the ocean (Sullivan, 2022; The New York Times, 2019).

Moreover, recycled materials have previously been stated to be more economically beneficial than that of virgin materials. This was also true for plastic up until January 2019. Driven by the boom of shale gas, technical innovations, and exponential rise in supply of ethylene production, it has become way easier and cheaper to produce virgin plastic, which has in turn led to widespread use and subsequent waste (Ackerman, McRobert, Levin, Sears & Ogilvie 2020; Ambrose, 2019; Hicks, 2020; Staub, 2021). Recycled plastic materials require such extensive treatment to be qualified for reuse that it has massively exceeded the cost of utilizing virgin plastics. In fact, recent statistics show that the spot market price for virgin HDPE (high density polyethylene), which is the type of plastic used for most plastic packaging, is about 50 cents per pound. Whilst for recycled natural HDPE, the price has increased to nearly \$1 per pound after accounting for processing and transport. This means that the companies utilizing recycled plastic are paying nearly twice as much than what they would for virgin plastic (Staub, 2019).

The international waste industry is constantly changing, and richer countries have long exported waste to developing countries, where China until recently has been one of the main recipients. For instance, between 2010 and 2016, China imported on average 8 million tonnes of plastic from more than 90 countries worldwide. However, in March 2018, the Chinese government announced to the world that they will no longer accept waste from other countries due to incomprehensible amounts of waste and destructive

environmental repercussions (Igini, 2022; Rapoza, 2020). Given insufficient infrastructure and the massive amounts of waste, other countries such as Vietnam, Thailand, Sri Lanka, and Turkey, to name a few, have followed in China's footsteps and also banned import of other countries' waste. This has stifled the domestic waste management in many Western countries for which previously relied on China and other Asian countries to handle their waste management. The lack of adequate recycling plants has forced many of them to find other less developed markets, but also increased their incineration rates (Igini, 2022).

As for Norway, they also export a substantial portion of our waste to other countries due to a lack of sufficient incineration capacity to handle all the residual waste generated within the country (Miljødirektoratet, 2022). In 2020, Norway exported 1,9 million tonnes of reportable waste, where approximately 65 percent was exported to Sweden (Miljødirektoratet, 2020; Handelens Miljøfond, 2020). However, it should be mentioned that a waste reception is paid for by simply accepting the waste, often before the waste has even been processed. Given the excessive amounts of waste, it can therefore be attractive for unscrupulous actors to take shortcuts in the treatment of the waste, or to send the waste further out of Europe in order to save money. Furthermore, there currently exists no requirement for third-party monitoring and thus no documentation on where the exported waste actually ends up (Olsen & Haavie, 2020).

There is no question whether these findings about recycling contradicts each other. Thus, in order to investigate further how this information will be received by consumers, we saw it necessary to investigate previous literature about how individuals psychologically process contradicting information in general.

Contradictory information:

Contradictory information is defined as "statements that are logically inconsistent" (Pan, Zhang & Zhang, 2020). Thus, by its nature contradictory information complicates the human rationalization process, in the sense that it

does not provide clear information or guidance for us to accurately assign meaning to an object, decide on an appropriate behavior, nor to predict future outcomes (Pan et al., 2020). This activates our implicational principles, which might further lead to a range of responses such as disbelief, confusion, distrust in science or information source, loss of credibility, or an attempt to reconcile the conflicting information. Moreover, the manner in which individuals process such information is influenced by their own existing beliefs and implicational principles (Bear & Hodun, 1975; Vardeman & Aldoory, 2008). Several theories and models have also been developed in an attempt to analyze how humans psychologically negotiate conflicting or intricate information. However, to avoid confusion, and given the multitude of existing theories in the psychology paradigm of research, this study will concentrate on the factors that make up the theory of uncertainty management.

Uncertainty management theory

Uncertainty management theory holds that uncertainty arises when “details of a situation are ambiguous, complex, or unpredictable; when information is unavailable or inconsistent; and when people feel insecure of their own state of knowledge or the state of knowledge in general” (Brashers, 2001, p.478). Furthermore, responses to uncertainty are shaped by appraisals and emotional reactions to the experience. In which appraisal implies that people judge the meaning of an event on its relevance to their lives, and on the likelihood of that event occurring or not. Moreover, uncertainty increases as the likelihood of an event happening or not happening are closer to equal (e.g., a perceived 50% likelihood of their disposed waste being recycled or not will increase uncertainty). Emotional reactions to uncertainty are further divided into *negative emotional responses*, *positive emotional responses*, *neutral emotional responses*, and *combined emotional responses*. In which, negative emotional response indicates a worried appraisal when uncertainty is viewed as a danger or threat. Furthermore, this increases the levels of insecurity. In contrast, positive emotional response occurs when uncertainty is viewed as beneficial. In the sense that despite experiencing uncertainty around an event, the belief of a “brighter future” is still a possibility, and this further results in a feeling of hope and optimism. Neutral emotional responses such as indifference or apathy is due to uncertainty being judged as inconsequential. Lastly, combined

emotional response can arise when both positive and negative emotional reactions to uncertainty co-occur. Thus, this study's research question 1 is as follows:

RQ1) What emotions and affective responses do consumers experience when exposed to contradictory information about recycling of household waste and its environmental impact?

Moreover, how individuals further engage in uncertainty management are divided into four categories of behaviors: 1) seeking and avoiding information, 2) adapting to chronic uncertainty, 3) obtaining assistance with uncertainty through social support, and 4) managing uncertainty management. In which, seeking and avoiding information entails "gaining information to manipulate uncertainty in a desired direction" (Brashers, 2001, p.483). Adapting to chronic uncertainty might include so-called "uncertainty acceptance", which further result in behaviors such as ignoring the uncertainty-producing event altogether, and rather relying on faith or higher power. Furthermore, obtaining assistance with uncertainty through social support encompasses searching for comfort through one's interpersonal relationships. Therefore, research question 2 is:

RQ2) How will this contradictory information affect consumers' further recycling attitudes and/or behaviors?

Lastly, managing uncertainty management might be complicated by the nature of information or individual complexity of information seeking and avoiding. Thus, the necessary social skills to seek and provide information, as well as cognitive capacity, to comprehend, integrate, and apply it, varies from individual to individual (Brashers, 2001). Consequently, the last research question of this study is:

RQ3) How does consumers' prior knowledge and awareness of recycling practices influence their perception of contradictory information about recycling of household waste and its environmental impact?

Given the recent contradicting evidence about recycling, and the overall lack of necessary skepticism currently existing in the research paradigm, this research will delve into the realm of how such contradictory information will emotionally affect consumers' perception and attitudes of recycling, as well as potential behavior alterations. The following sections illustrate the methodological procedures that were used to answer the overall research questions, an analysis of the qualitative findings, and finally a discussion of the results and future implications.

3.0 Methodology

Given the lack of research on consumer perceptions regarding recycling contradictions, an exploratory research design is most suitable. Furthermore, as we seek to explore individual consumers' personal experiences, opinions and attitudes, in-depth interviews are chosen as our data collection method (Gripsrud, Olsson & Silkoset, 2021; Boyce & Neale, 2006).

Sampling and recruitment of respondents

Given the chosen research design, we used a sample size of 13 participants as it coincided with a normal sample size for in-depth interviews (Gripsrud et al., 2021). Furthermore, recent research shows that Gen Z and millennials are proven to care more about climate change, overconsumption, and loss of biodiversity, than other generations. In which, seven in ten young adults say they actively try to minimize their impact on the environment (Deloitte, 2023; Nordic Council of Ministers, 2019). Thus, we saw it especially interesting to investigate how these "young and green" individuals would rationalize the recent contradicting evidence about the recycling industry. The convenience sample size therefore consisted of graduate and undergraduate students from various Norwegian educational institutions. This was to avoid any potential bias as to what kind of study program they are attending, hopefully giving the sample a variety of students with various predispositions about recycling. To recruit participants, we reached out to our social and professional network on

the social media platform LinkedIn, where we specified that we wanted students from various study programs.

After receiving participants that expressed interest to participate in our study, we requested them to provide their demographics such as gender, age and study program. Furthermore, we asked them to place themselves on a scale from 1 to 3 in terms of self-reported perceived sustainable knowledge and sustainable behavior. Where, 1 = Limited knowledge about sustainability and the impact of different sustainable behaviors, 2 = Moderate knowledge about sustainability and the impact of different sustainable behaviors, and 3 = Proficient knowledge about sustainability and the impact of different sustainable behaviors. To ensure unbiased responses, we intentionally withheld information from the respondents regarding the primary focus of the interview, which was recycling and contradictory information. In which, the intention was to prevent any preparatory information-seeking beforehand. Moreover, we selected 13 respondents with the aim of achieving a diverse representation of genders, study programs, age, as well as self-reported knowledge level about sustainability, and predispositions regarding perceived impact of different sustainable behaviors.

Sample of respondents

Among the 13 Norwegian respondents, 61,5 % identify as female, and 38,5% identify as male. Furthermore, 23,1 % of the respondents study within economics, management and administration, 23,1% study within sustainability and business development, 30,7% study within marketing and management, and the remaining 23,1% within health and sports science. Moreover, an equal distribution of 30,7% placed themselves within limited or moderate knowledge about sustainability and the impact of different sustainable behaviors. Whereas the remaining 38,6% placed themselves at proficient knowledge about sustainability and the impact of different sustainable behaviors. See Appendix 1 for a full overview of the respondents.

Data collection and in-depth interview guide

For our data collection we utilized a semi-structured interview format in the sense that we created an interview guideline with pre-set questions to serve as a foundation for the interviews. This allowed for flexibility and the opportunity for us as researchers to rephrase ourselves, as well as offer explanations if required. Additionally, social acceptance is strong, and as most people want to be seen as good citizens who contribute to the better good, we saw one-to-one in-depth interviews as the most sufficient means to mitigate social desirability bias (Gripsrud et al., 2021).

The interview guideline was designed to gather information about young adults' perspectives of recycling in general, and subsequently, how they receive the contrary evidence about recycling. The guideline starts by exploring the participants' predispositions about recycling, such as their knowledge, attitudes, and beliefs about the recycling industry, as well as the perceived environmental impact of recycling. This included investigating questions such as: "*What comes to mind when you hear the word recycling?*" (See Appendix 2, Q1), which allowed the respondents to freely express what their individual thoughts on recycling are, as well as serve as an indicator for how much knowledge and or/interest they obtain about the subject in general. Furthermore, this part of the interview guide included scales ranging from 1-10 in which the participants were asked to place themselves in terms of consistent recycling behavior and perceived impact of recycling. These scales provided us with definitive measurements that precisely pinpointed how consistent their current recycling behaviors are, and to which extent the respondents believe recycling to have an impact on the environment. Moreover, we investigated their perceptions of recycling attitudes and behaviors among the general population both worldwide and Norway specifically, as well as their attitudes regarding the responsibility and impact of the individual consumer. In which, the intention was to get an overview to what extent the respondents perceive recycling to be a socially accepted behavior, as well as to capture the normative aspect of recycling (Barr, 2007; Olsen & Haavie, 2020). The last questions within this part of the interview revolved around exploring their choice of information sources regarding recycling, to which extent they trust these

sources, as well as their self-reported perception of their overall knowledge about the subject.

The second part of the interview entailed introducing the contradicting evidence about recycling. To prepare the respondents for the following part, we explained that we would provide them with some questions based on information from recent well-respected academic and news sources regarding recycling. The questions revolved around the previous presented information in our literature review. All along we included follow-up questions to be provided in case the respondents either lacked sufficient knowledge about the subject and/or reflective ability to answer the question. The first question of this part was of an investigative nature, in which we asked our respondents what they think happens to their waste after they have recycled it, and it has been collected by garbage trucks. The objective was to investigate whether, or how much, the respondents are aware of regarding the current components of the recycling process. Furthermore, to avoid biased answers in any given direction, we were careful to frame the questions in an open manner, which allowed the respondents to reflect around what they personally think around the given subject. For instance; *“Many wealthy countries export their trash long distance to developing countries, and while the Norwegian government banned this practice in 2020, 80% of Norwegian household waste is still exported to other countries. Why do you think countries choose to export their waste?”* (See Appendix 2, Q11). Moreover, we also presented them with consequential questions with the objective to investigate both their cognitive ability and emotional reaction to rationalize such contradicting information. For example, after presenting them with information about the increased cost of recycled materials compared to virgin materials, we asked them what they think the consequences of this development within the recycling industry will be (see Appendix 2, Q19d). To conclude this section, we sought to explore the respondents’ rationalization process in more depth by asking them questions such as: *“Has this information regarding the recycling industry changed your viewpoint of the financial and environmental impacts of recycling?”* (See Appendix 2, Q20). Furthermore, given the fact that pro-recycling campaigns have been promoted by the Norwegian government, media and environmental groups for decades, we wanted to investigate how the respondents’ initial

responses were after being presented with information that directly contradicts what they have been told for years. Moreover, whether the information had elicited any emotional reactions such as lack of credibility in the government/media/environmental groups, confusion, insecurity, and/or indifference. This included questions such as: “*Why do you think the government, media, and environmental groups continue to push recycling when it is proven to be much more costly and less environmentally friendly than hoped?*” (See Appendix 2, Q21).

The guideline then concludes with questions revolving around the participants’ reception of such contradicting evidence, whether they find it problematic or not, and any concluding feelings regarding the presented information. In which the overall objective was to explore whether and/or how this contradicting evidence of the recycling industry will eventually alter their recycling beliefs, attitudes and/or behaviors. Considering the confidentiality and privacy of the collected data, our research complies with the General Data Protection Regulation (GDPR). For the entire interview guideline, see Appendix 2.

Informative interview details

Due to the nationality of our respondents being exclusively Norwegian, and the native language of us interviewers, the interview guideline, as well as all our interviews and transcriptions were conducted in Norwegian (see Appendix 3 for translated interview guide). The duration per interview was approximately one hour. Furthermore, the interview guide was continuously improved during the research, in which we ran a pre-test of the interview before executing the actual in-depth interviews, to ensure we would receive as clear and relevant responses as possible. Lastly, we utilized audio-recording complemented with written notes including observations of both verbal and non-verbal behaviors during the interviews.

3.1 Data analysis and interpretation

Transcription Process

The purpose of transcribing our in-depth interviews was to structure and make it suitable for further analysis. Moreover, it enabled us to examine the data in greater detail and identify patterns and arising themes. In order to account for nonverbal cues such as silence and body language, as well as emotional aspects, we utilized a tape recorder to record the interviews for which gave us the opportunity to listen to the interviews afterwards and detect if and/or when such cues occurred. The transcription was further done manually by us researchers using a verbatim approach where the written words are an exact replication of the audio recorded words (Halcomb & Davidson, 2006). Once the transcriptions were successfully completed and translated into English, we had the raw material available to organize and prepare for further analysis.

Coding & Decoding information

For the coding and decoding process, we utilized Creswell's (2012) visual model for qualitative research as inspiration. In which we first got a sense of the whole data, read all transcriptions carefully, and wrote down ideas as we read through the data. Next, we reduced the content load by focusing on one interview at a time and wrote down relevant cues and reactions throughout. Thereafter, we started the process of coding the interviews by identifying segments and assigning phrases that would further structure our research content for further analysis. Then, we grouped similar codes together and continuously reduced the list of codes in order to be left with only the most prominent ones. Finally, we used the list of codes to identify relevant themes for each research question. These themes will further be described and discussed in our subsequent sections.

4.0 Findings

In this section we will present the results of our in-depth interviews, as well as a discussion of those results. Furthermore, we will use those results to answer our three research questions.

In order to analyze our respondents' responses to the contradicting information about recycling, we first sought to classify their prior knowledge and awareness of both contemporary recycling practices, and whether, or to which extent, they were aware of the recent developments beforehand. Thus, we developed a knowledge scale which consists of four levels, where level 1 is the lowest and level 4 is the highest. This scale is exclusively built on the respondents' prior knowledge and awareness of the provided information in the interview guideline, as well as their individual contribution during the in-depth interviews. For detailed description of the different knowledge levels and distribution of respondents belonging to each level, see Table 2.

Knowledge and awareness levels:	# of respondents belonging to each knowledge level
Level 1 - <i>Lacks foundational knowledge about recycling in general (processes, consumers' impact, recyclable materials, recycling symbols etc.)</i>	23,1%
Level 2 - <i>Some foundational knowledge about recycling (processes, consumers' impact, recyclable materials, recycling symbols etc.)</i>	23,1%
Level 3 - <i>Foundational knowledge about recycling - can name some relevant factors related to recycling processes, consumers' impact, recyclable materials, and recycling symbols etc.</i>	46,2%
Level 4 - <i>More than foundational knowledge about recycling - mentions recent developments within the industry, as well as offering some reflections about the sustainable impact of recycling</i>	7,7%

Table 2 - Knowledge and awareness levels and distribution of respondents belonging to each level

Respondents belonging to **knowledge level 1** (23,1%) mainly obtain their information regarding recycling of household waste from their local community, as well as media sources such as social media and advertisements. They provide overall short answers when asked about what they think recycling is, the processes it entails, its perceived environmental impact, and the current state of the recycling industry. They need extensive follow-up questions in order to get more information and use a lot of phrases such as “I think”, “I don’t know”, and “I guess”. When asked what they think happens with the waste after it has been collected by garbage trucks, they all trust that the waste is being sorted and recycled accordingly. In other words, they are not aware or updated on the current recycling processes and intricate factors for which it entails.

Furthermore, respondents belonging to **knowledge level 2** (23,1%) also mainly rely on their information regarding recycling from their local community and aforementioned media sources. However, they provide somewhat informed answers about recycling, the processes it entails, its perceived environmental impact, and the current state of the recycling industry. They obtain some foundational knowledge about the many factors for which plays a key role in the waste management industry, nevertheless, they are still unaware of recent critical developments.

The majority of our respondents belong to **knowledge level 3** (46,2%). They gain their information from a range of different sources such as their local community, and governmental sites and social media accounts. They show basic foundational knowledge about recycling, its processes, and its perceived environmental impact. Moreover, they are aware of which materials are recyclable as well as the most common recycling symbols provided on different product packaging. Some of them also express suspicion or misgivings about the problematic current state of the recycling industry. However, despite being able to reflect over various potential explaining factors, they are still not aware about the latest developments within the industry.

The smallest knowledge group is the respondents belonging to **knowledge level 4** (7,7%), where only one respondent obtained this degree of prior knowledge and awareness of the recycling industry. They state to get their information from exclusively governmental sites and recognized news sources. Furthermore, they show more than foundational knowledge, in the sense that they can mention recent developments within the industry, both locally and globally, without being asked follow-up questions. They reflect on the intricate factors that entails in the handling of the waste, as well as the economic factors for which are largely considered in the decision-making process. Moreover, they show high reflective ability when provided with information they were not yet aware of and provide sound arguments for why they believe it is the way it is.

Nevertheless, there remains one important aspect of information to be reported, which is that regardless of prior knowledge and awareness, *none* of our respondents obtained the full picture of the recent contradicting evidence about recycling. However, it should be mentioned that three of our respondents revealed a sense of suspicion when specifically asked about the perceived environmental impact of recycling. In which, they all referred to a specific documentary as the source for their apprehension. The documentary they are referring to is the renowned documentary produced by “Folkeopplysningen” (“Public enlightenment”) which is a series provided by the Norwegian Broadcasting Corporation (NRK). More specifically, the episode “Resirkulering” (“Recycling”) from 2020, which explores more thoroughly how effective the recycling measures are in terms of climate change and environmental impact in general. To our knowledge, this is the only Norwegian public source which holds a more skeptical tone around recycling practices and its alleged environmental impact. This skepticism is further expressed by these three respondents, in which respondent (5) says: “...*On one hand, there has been a lot of talk, including that “Folkeopplysningen” episode, right? What kind of impact does recycling actually have... Hm... what kind of influence do I actually have because it turns out they just transport everything to Russia and China, for example... where they use a lot of gasoline along the way, a lot of waste ends up in the ocean, and so on... so it becomes like, does it even matter*

then... but then I also think, why does the government want us to recycle and go to the extent of installing these trash bins, all these color-coded recycling bags, etc... like, it would be strange if it just didn't work...". Furthermore, respondent (12) also finds it hard to form an opinion whether recycling is beneficial for the environment or not, which is shown in their response: *"Oh, I can't really answer that because I've watched that "Folkeopplysningen" episode and I feel like it left me with the impression that nothing really works very well... but I do think there must be a reason why we still do it... hm... but one would think that it reduces CO2 and gas emissions, etc... That's instinctively what I think, but then again, maybe I feel like we can't achieve it through recycling because I watched that documentary".* Respondent (9) confirms this wavering viewpoint by saying: *"You hear such things like, that it demands more energy to wash the waste we sort than the benefit we get from recycling it... I don't know if I can trust this, but then I watched that "Folkeopplysningen" episode, and it makes me insecure again... it's difficult to know what's really the best thing to do".*

Nonetheless, despite sharing a tone of apprehension regarding recycling, these three respondents show quite different affective and emotional reactions, as well as attitude and behavior alterations. Thus, the subsequent sections will further report all given results of our respondents in terms of the stated research questions, as well as how their responses align or diverge from the factors that make up the theory of uncertainty management.

4.1 Summary of research questions

RQ1: What emotions and affective responses do consumers experience when exposed to contradictory information about recycling of household waste and its environmental impact?

Our respondents show a range of varied emotions and affective responses when exposed to the contradicting information about recycling and its environmental impact. Given previous literature which finds uncertainty to arise when individuals are presented with contradicting information, as well as to make our results more comprehensible, we have categorized our respondents'

emotional and affective responses into three emotional responses identified by the theory of uncertainty management - namely, 1) positive emotional response, 2) negative emotional response, and 3) neutral emotional response (Brashers, 2001).

When exposed to the contradicting evidence, respondents belonging to **category 1** (38,5% of the respondents) express increased motivation to remain hopeful and optimistic for a better future to come. These respondents choose to view the future potential improvement of the recycling system as a possibility regardless of the current situation. This further aligns with a positive emotional response to uncertainty (Brashers, 2001). For instance, when respondent (8) was asked whether this information would change their recycling attitudes or actions, they said: *“I’ve rather been reminded of it and can become even better at it”*. Respondent (13) also express that; *“I know that my habits and attitudes won’t change negatively... we have to do what we can, because the alternative of doing nothing is worse”*. Despite a positive ending-argument, the moods when receiving the contradicting evidence of these respondents were various forms of counter-arguing. In which, they responded by taking a more defensive attitude, and more or less refused to accept or acknowledge the contradicting arguments. Furthermore, they all expressed a high level of assertiveness when conveying their logical reasoning of the contradicting evidence. For instance, when asked whether they believe the government would present both positive and negative aspects about recycling, respondent (6) declares: *“Both yes and no. Because I believe that those who work with this are focused on showing how important it is to recycle, but when much of it is actually burned, that is not good. However, that does not mean that recycling is not good. Maybe they don’t show that side of the issue to emphasize its importance. If they say too much (of the negative), the point may not come across as effectively”*. Furthermore, when asked the same question, respondent (3) explains: *“I believe that the environmental impact of recycling is positive in the long term regardless. I am convinced that the long-term benefit of recycling is not just about the environmental and financial aspects, but also about culture and awareness. I believe that increased focus on reuse and recycling will further provide butterfly-effects in the sense that it can spread a sustainable attitude across other areas as well”*.

Furthermore, when asked whether, after presented with this contradicting evidence, they perceive any limits or barriers for their individual contribution to sustainability, the overwhelming response is that “a little goes a long way”. Moreover, even though their individual contribution is almost insignificant, they express a moral intuition to remain motivated to keep doing what they can to contribute for a more sustainable world. When asked why, respondent (8) states that: *“I get a little frustrated if I hear someone say that it doesn’t matter what I do. I believe that if everyone does their part, then the positive attitude will influence other people and eventually the whole nation as well. So, if Norwegians are good, then we can be a leading country in Europe that takes global responsibility. That is why I am willing to continue doing my part”*.

On the flip side, are the ones belonging to **category 2** (38,5% of the respondents). When exposed to the contradicting evidence about the recycling industry, they react with anger, disappointment, surprise, and/or insecurity. This further aligns with a negative emotional response to uncertainty (Brashers, 2001). When asked whether this information has changed their view of the economic and environmental impact of recycling, respondent (5) says with an increased vocal volume in a clearly aggressive demeanor: *“I am shocked of how greedy people are, and only cares about cutting costs and give zero f**cks about the environment even in bad times ... this is just proof of how short-sighted creatures we are”*.

Moreover, when asked the same question, respondent (1) states in a more disappointed manner: *“I find it incredibly sad, especially considering that it somehow affects nature, the ocean, and, generally, the pollution that occurs because of it... I feel a bit disgusted by this information”*. Furthermore, several of the respondents in this category express a feeling of surprise and often respond with verbal cues such as “Wow”, “Sh*t” and “That is crazy”. Moreover, they show hesitation and struggle to form an opinion regarding the contradicting information, in which they express emotions such as confusion, hopelessness, worry, and distrust in the system. In addition, when asked whether they perceive any new barriers or limitations for their individual impact on sustainability, they linger back and forth between the importance of

continuing to do “what they can” and perceived loss of impactfulness. As respondent (11) doubtfully says: *“I’ve previously thought that the system might not be perfect, but that it works. So, one gets shocked when one hears that it is not as good as one thinks... so I’m perhaps a little disappointed... and maybe I’ve become a little more critical of it, but I don’t think I’ll stop sorting my waste... I don’t think so”*. Furthermore, when asked what feelings they are left with after being presented with this information, respondent (9) states: *“I feel like maybe I have a little less impact than I previously thought... It makes me feel a little helpless, and that I don’t have much control.”*

Then, for **category 3**, we have the respondents showing indifference or lack of personal involvement (23,1% of the respondents). They all express a sense of consideration for others who might be affected by this contradicting information regarding recycling, but they themselves do not personally experience any deep emotions towards it. This further aligns with a neutral emotional response when experiencing uncertainty (Brashers, 2001). For instance, when asked whether they believe this contradicting evidence to be a problem, respondent (12) states in a calm and composed demeanor: *“For me personally; no... but if it’s a problem...maybe in the sense that we are using our resources on something that may not be as effective as other things could be... but then I don’t know if it’s a big problem in the bigger picture because I’m left with the impression that it doesn’t really have much of an impact as of today anyway”*. When asked which feelings they experience after being presented with this information, their answers are mostly apathetic and detached from emotion. As respondent (4) says: *“I am not personally very irritated, but I can understand that one can become so”*. Moreover, when asked whether they perceive any new barriers to their individual impact on sustainability, respondent (4) seemingly unconcerned makes the statement: *“I think it is what it is”*.

RQ 2: How will this contradictory information affect consumers’ further recycling attitudes and/or behaviors?

For potential attitude and/or behavior alterations regarding recycling, we have divided the responses into two main categories, namely 1) attitudes, and 2)

behaviors. Where attitudes are divided into subsequent two main attitudes; 1) decreased trust and disclaims personal liability, and 2) upheld positivity. Thereafter, as identified by the theory of uncertainty management, subsequent management behaviors that might occur when individuals are presented with contradicting information are: 1) seeking and avoiding information, and 2) adapting to uncertainty (Brashers, 2001). Thus, we will analyze whether, or to what extent, our respondents' behavioral responses align with those of uncertainty management theory.

The respondents (38,5%) belonging to **attitude category 1**, express decreased trust in the system, in people, and their individual impact in the fight for sustainability. When asked whether they experience any new obstacles or limitations for their individual impact on sustainability, they express a lack of hope and disclaims personal liability for any potential improvement for the recycling industry. As respondent (5) states: *“I think it just confirms how little influence consumers actually have, and that the key rests with larger companies, the government, and regulations and legislations”*. Respondent (11) also confirms these concerns by saying: *“I do not completely trust the system as I've previously done... and one starts to think “does it even matter” ... I know that as one individual, we don't have a huge impact on sustainability and such things...”*. Some of the respondents also show a sense of confirmed suspicion of the system not working as optimally as previously perceived. These respondents are mainly those who reported to have watched the aforementioned recycling documentary by “Folkeopplysningen”. For instance, respondent (9) confirms this by saying: *“You get so much different information, the municipalities say something and then you watch a documentary that says something else... so then naturally you become unsure of what you actually should do... and I experience that as a problem”*. Respondent (12) further supports this concern: *“... it strengthens the thought I had that it does not matter how much I recycle... It feels like I don't have a say when it comes to the environment...”*.

The majority of our respondents (61,5%) belong to **attitude category 2**, for which, in contrast, reveals more positive attitudes and expresses confidence for a “brighter future”. When asked whether their view on the environmental

impact of recycling has changed after receiving the contradicting evidence, they all make statements mainly building on the notion that even though the effect is small; “a little goes a long way”. Respondent (8) confirms this by saying: *“The gain is not great, but there is a gain there. And since it is a small gain, I am going to continue doing what I’m doing”*. When asked why they remain positive when the current situation is as it is, they all express a fundamental moral instinct to uphold their positivity and express an unshakeable hope for a better future to come. As respondent (13) explains: *“My opinion is that recycling is positive, and the alternative to stop recycling is worse. Everyone, including people, governments, and countries must do what we can for our planet”*. Respondent (3) confirms this notion by saying: *“To change my current good attitudes would only worsen the situation. I remain confident that my contribution is positive, despite what’s happening on the other end”*.

Adapting to uncertainty

Furthermore, our respondents express different indications for further behaviors to manage the contradicting information about recycling. Despite mixed attitudes, the majority of our respondents (61,5%) announce that they will continue their recycling habits regardless of its minimal current environmental contribution. Which further aligns with the element for which uncertainty management theory identifies as adapting to uncertainty. In which, one behavior includes mitigating the uncertain elements by creating a structure or routine that works as a “good enough” solution while waiting for the problem to be resolved (Brashers, 2001). As respondent (1) expresses, despite obtaining a more critical attitude: *“I think I will continue to sort my waste and all that... but I am a bit more critical now”*. Respondent (11) confirms this point of view by saying: *“Perhaps I will be a bit more critical of it, but I don't think I will stop sorting my waste”*. Furthermore, another adapting behavior in this regard involves accepting the uncertain recycling situation for what it is and relying on higher power or superior stakeholders to deal with the problem (Brashers, 2001). In other words, they disclaim personal liability and remove themselves from the situation. As respondent (3) states: *“I hope that more waste will be sorted - at least in Western countries - and that they take more responsibility for the amount of waste they already have”*. Alternatively, they

ignore the contradicting evidence about the insignificant impact of recycling and simply choose to stick to their prior beliefs, thus also continuing their habits. Respondent (4) affirms this behavior by saying: *“It’s possible that it doesn’t have a huge impact, but even if it has a small effect, I will happily continue the way I am so that I can contribute a little and hope that it gets better in the future”*. When asked why, they express a variation of lack of better options, and unconscious automaticity when it comes to their recycling habits. As respondent (2) expresses: *“I don’t know what else to do. I feel like it would be wrong not to recycle”*. Respondent (10) reveals that it is mostly due to unconscious habit: *“No, I don’t think I will stop recycling my waste. All of this is a matter of habit for me. It’s just how it is. I won’t suddenly throw everything together just because I’ve received this information”*.

Seeking and avoiding information:

Another uncertainty management behavior includes seeking and avoiding information with the objective to manipulate uncertainty in a desired direction. Where, people seek knowledge they lack or to confirm or disconfirm their current state of beliefs (Brashers, 2001). The remaining of our respondents (38,5%) express indications for this way of dealing with the contradicting information. In which respondent (12) communicates: *“I feel like I still don’t have a deep understanding of recycling, and that more information and knowledge would be helpful”*. When asked whether their recycling habits will change after being presented with the contradicting information, respondent (9) says: *“No, not really... I’ll probably continue as I am... I might have become a bit more uncertain, but I feel like one has to stick to the habits they believe in, right... and maybe I need to educate myself more... maybe I just feel like I need to become more aware”*. However, an important aspect of this uncertainty behavior is that information does not need to be “correct” to reduce uncertainty. Rather, information is pursued to distinguish options or create a sense of meaning of the conflicting information (Brashers, 2001). This aspect is very clear from some of our respondents' responses, in the sense that rather than recognizing the provided information about the current recycling system, they transform the information to fit their prior positive attitudes about recycling. As respondent (7) states: *“I feel like the information is inspirational*

in a way and that this has been very informative... and I can definitely improve my recycling habits. I actually think that recycling is even more important after receiving this information". Alternatively, they express that in addition to continuing their recycling habits, they will increase their sustainable efforts in other areas. Respondent (13) affirms this notion by saying: *"I will not change my current recycling behavior. I'll rather expand my contribution by looking at other sustainable consumption behaviors, like consuming less, using things for longer periods of time, and throwing away less in general".* When asked why, the repeating statement and relentless belief from these respondents is that "a little is better than nothing".

RQ 3: How does consumers' prior knowledge and awareness of recycling practices influence their perception of contradictory information about recycling of household waste and its environmental impact?

Uncertainty management theory holds that management of uncertainty might be complicated by individual levels of social skills and cognitive capacity needed to comprehend the given information (Brashers, 2001). To further answer how prior knowledge and awareness influence respondents' reception of contradicting evidence about recycling of household waste and its perceived environmental impact, we sought to find comparisons across the different knowledge levels and their subsequent emotional and affective responses, as well as their attitude and behavior alterations. The majority of the respondents belonging to **knowledge level 1 and 2** express more uncertainty and negative emotions (e.g., disappointment and decreased trust) when receiving the contradicting information. Thus, signaling a negative emotional response (Brashers, 2001). Furthermore, they show a lack of motivation regarding their individual impact on sustainability and disclaims personal liability for any potential improvement of the situation. However, two of the respondents belonging to these two knowledge levels remain indifferent and express a low sense of personal involvement in the matter. Thus, signaling more along a neutral emotional response (Brashers, 2001).

On the contrary, most of the respondents belonging to **knowledge level 3 and 4** reveal more resilience, and/or ability to put a positive spin on the

contradicting information, in the sense that they express an increased motivation to not only continue their recycling behaviors, but also look for other “better” alternatives (e.g., vintage shopping, consuming less etc.). Only one respondent belonging to knowledge level 3, expressed a decreased trust in the system and lack of motivation. In which, reinforce the individual variations in both social skills and capacity that might complicate uncertainty management (Brashers, 2001).

4.2 Unexpected findings

High trust in the Norwegian government

Besides the findings related to our research questions we found some unexpected themes that were repeatedly mentioned during our interviews for which also should be documented. First and foremost, when receiving information about recycling that completely contradicts the information given by the Norwegian governments over the last decades, the overwhelming settlement from the respondents is fierce loyalty. When asked why they think the government, environmental groups, and media continues to promote recycling despite its current insignificant impact, respondent (9) states: *“Even though recycling only has a small environmental benefit, it’s still something... and that’s probably what the government is also hoping for”*. Respondent (13) also claims that: *“Since we live in Norway, I trust both the government and the municipalities. I can disagree with something, but I trust what they communicate about recycling. That some waste is burned or exported is bad, but I choose to trust the information I am given”*. Moreover, they all express a conviction of the government having the “right intentions” in which they choose not to report such contradicting information to avoid confusion and uncertainty among citizens. Respondent (2) confirms this point of view by saying: *“... it will create a sense of mistrust or confusion among people, and then it becomes much harder to achieve collective change”*. Furthermore, even though some respondents express decreased trust when receiving this contradicting evidence, they still remain hopeful and trust that the government will find a better solution in the end.

Younger generations “care” more

The second theme that our respondents repeatedly brought up was the impression that younger generations “care” more about recycling, and sustainability in general, compared to older generations. They frequently make statements such as “*it has become cooler to be green*” (respondent 5), “*it’s cool to recycle, reuse things, and go vintage shopping for the younger generations*” (respondent 8), and “*the young are more awake and informed about the environment and sustainability*” (respondent 13). When asked why, they mostly agree on the fact that the subject of sustainability has been a more prominent part of the news agenda, as well as the educational curriculum, through recent decades compared to previous years. Thereby, the younger generation has been aware of the importance of sustainability from a younger age than older generations. Furthermore, respondent (5) states that: “*I think the younger generation has a more conscious relationship with it*”.

The following interpretations and implications of our findings will further be discussed in the next sections.

5.0 Discussion and conclusion

To interpret the implications of our findings, and further answer how contradictory information affects consumers’ perception of recycling and its perceived environmental impact, we need to connect our results to the existing research paradigm by revisiting previous literature.

Contradicting information is hard

Previous literature states that contradicting information might elicit emotional and affective responses such as confusion, uncertainty, distrust, and loss of credibility (Bear & Hodun, 1975; Vardeman & Aldoory, 2008). This coincides with the given emotional and affective responses of our respondents belonging to **category 2** (negative emotional response). Majority of these respondents find the contradicting evidence regarding recycling as confusing and disappointing, in which they are left feeling a sense of hopelessness, uncertainty, and loss of credibility of other people’s recycling efforts as well as

the current recycling system. Previous literature finds that people judge the meaning of information based on its relevance to their lives, and on the likelihood and evaluation of the information (Brashers, 2001). Our respondents show clear distinctions in their individual degree of these factors. The respondents belonging to **category 2** seem to recognize the contradicting evidence of recycling as a problem; however, they vary in the extent to which they perceive personal relevance. The most affected respondents are the ones expressing negative emotions such as disappointment, insecurity, confusion, and decreased sense of impact, which further indicate a high level of personal relevance. Additionally, uncertainty is found to increase as the perceived likelihood of an event occurring or not, becomes equal (Brashers, 2001). In this regard, when people are unsure whether their recycling efforts will make a difference or not, their level of uncertainty increases. In which, the reason for these respondents' negative emotional reactions might be due to the likelihood of their recycling effort being perceived as a fifty-fifty percent chance to have an impact or not. Which further increases their uncertainty of the matter and is thus shown in the discouragement these respondents clearly express.

Rather than feeling discouragement, the remaining respondents from the same category express indifference or emotional detachment from the subject in its entirety. They indicate a sense of understanding of recycling being important to others, but that they themselves do not personally obtain any feelings around the subject. We could therefore argue that there is a sense of problem recognition there, however merely based on social considerations for others. Nevertheless, their personal relevance is too low to elicit any further emotional reactions towards the contradicting evidence. Moreover, recent research shows that when it comes to specifically pro-environmental behavior, people have a tendency to bias their responses (Vesely & Klöckner, 2020). Thus, this expressed consideration could also just be a variation of social desirability bias, in which they only convey this concern to avoid being sanctioned as selfish or with any other socially disapproved characteristics.

On the contrary, we have the respondents belonging to **category 1** (positive emotional response), which rather than feeling discouragement, express an increased sense of motivation and internal perseverance to remain loyal to what

they believe is right; namely continue recycling their waste for a hopeful “better” future to come. It could be argued that their confidence and positive attitudes is a result of their perception that their recycling contribution does make a difference, rather than not. Which, according to research, will mitigate the experienced uncertainty that occurs after receiving contradicting information (Brashers, 2001). In fact, a recent study on specifically younger consumers and their sustainable viewpoints, found that when younger consumers are confronted with concerning information regarding sustainability, they choose an optimistic outlook. In which, they make an active decision to remain hopeful, optimistic, and focus on the next positive steps to take (Nordic Council of Ministers, 2019). Nonetheless, it should be mentioned that when exposed to the contradicting information, the majority of these respondents reacted in a counter-argumentative manner. Which further indicates a sense of threat or danger to their current beliefs about recycling. This argumentation is thus used to reconcile the contradicting information in their desired direction, to hold on to what they already believe (Bear & Hodun, 1975; Vardeman & Aldoory, 2008).

Previous knowledge and awareness, and attitudes and subsequent behaviors

Regarding our respondent’s attitudinal reactions, we divided them into two categories, for which are 1) decreased trust and disclaims personal liability, and 2) upheld positivity. Previous literature finds that people’s attitudes are largely subject to the moral values and general norm of their own society.

Furthermore, the individual response towards recycling is greatly determined by the extent of their previous awareness and knowledge towards the environment (Ahmed, Bazmi & Bhutto, 2016). In addition to this connection, our findings show a positive correlation between our respondents’ previous knowledge and their attitudinal reactions after receiving the contradicting evidence about recycling. In the sense that the *higher* the knowledge, the stronger the *positive* attitudes. Similarly, the *lower* the knowledge, the stronger the *negative* attitudes. As already mentioned, the respondents reacting more negatively, also express a feeling of constraint or limited ability to make an impact for sustainability after receiving the contradicting information about recycling. This could be argued to be a result of their limited knowledge

around the subject, in which they lack the foundation to recognize appropriate subsequent and/or alternative actions. Whilst the respondents adopting a more positive attitude obtain more knowledge, and thus are able to comprehend the presented information, and reflect around other alternative sustainable actions to a greater extent. However, as mentioned, despite a positive ending-argument, these respondents' emotional reactions were counter-argumentative. Which again signals a feeling of threat or danger, in this case to their prior beliefs about recycling. Uncertainty management theory identifies a common uncertainty behavior as seeking or avoiding information to make one alternative appear more attractive than another (Brashers, 2001). In that case, these respondents may choose to cling to their positive attitudes about recycling as a delusional attempt of avoiding information that contradicts their current beliefs and shaping reality to their desired direction. Much likely because it is seemingly “easier”, and thus a more attractive option.

Furthermore, despite varied emotional and attitudinal reactions, all of our respondents state that they will continue their current recycling behaviors. This could be a result of a kind of unconscious boomerang effect, in the sense that when they are indirectly told to stop recycling because it does not have an impact on the environment, they choose to do the opposite (Byrne & Hart, 2009; Hart & Nisbet, 2012). However, recycling is found to underlie more normative influences compared to other sustainable actions, where it is perceived more as a habit than a conscious implemented action (Barr, 2007). In which, habits cannot suddenly be erased and are difficult to override (Verplanken & Orbell, 2022). This coincides with several of our respondents' responses, in the sense when asked whether they will change their recycling behaviors after receiving the contradicting evidence, they express a sense of doubt. In which, they perceive their recycling practice as automatic, and not something they consciously think about in their everyday lives. Where, some repeating responses are; “*it has become a habit to recycle my waste*” (respondent 1), “*it kind of goes automatically*” (respondent 5), and “*recycling is mainly a habit for me*” (respondent 9). Furthermore, to change or overcome a habit there must be sufficient motivation and opportunities associated with the particular context (Verplanken & Orbell, 2022). In which, only being presented with the fact that their current recycling practice does not render the previously

assumed impact, without offering any immediate opportunities for other alternatives, might not be motivation enough to stop current habits or practice. However, when asked why, most of them express a strong sense of duty to uphold this behavior despite what the contradicting evidence states.

High trust society

Previous literature further defines attitudes as “a learned predisposition to behave in a consistently favorable or unfavorable way with respect to a given object” (Schiffman, Kanum & Hansen, 2012, p. 233). In which, attitudes relevant to behaviors are shaped as a result of direct experience with products or services, word-of-mouth, exposure to mass-media, the internet and other forms of direct marketing of the given subject. (Kollmuss & Agyeman, 2002; Schiffman, Kanum & Hansen, 2012). Given the fact that the cause of recycling and its alleged sustainable contribution have been marketed and advertised through various campaigns for the past decades in Norway, it is logical that this has eventually shaped the Norwegian citizens' positive attitudes around recycling. As mentioned, recent surveys show that as much as 84 percent of Norwegians citizens regularly recycle their household waste (Haavie & Olsen, 2020). This coincides with our research, where 77 percent of our respondents categorize their recycling practices in the higher range of consistent recycling behavior (7-9). Yet, it should be mentioned that none of our respondents obtained the full picture of the recent developments within the recycling industry. Which further signals either a lack of interest and/or importance, or naive trust in the information they already have.

On that note, literature identifies Norway as a high trust society in the sense that they obtain high loyalty towards not only our government, but also people in general. As a matter of fact, a recent study found that as much as 76 percent of Norwegians find fellow citizens as trustworthy (Christensen & Lærgreid, 2020). This aligns with the findings of our study, where 62 percent of our respondents expressed unwavering trust in their information sources, while the remaining 38 percent also predominantly state to rely on their sources. Moreover, this unquestionable trust also reveals itself in the fact that none of our respondents questioned or offered any misgivings about our sources of

information for the contradicting evidence during the interviews. Moreover, when asked why they believe the government, media and environmental actors have chosen to not share the contradicting evidence about recycling, they all express concern for the potential consequences if this information would be publicly announced. Some repeating responses are; *“people would be less motivated to sort their waste and people would become more critical”* (respondent 1), *“if the government would publish this information, people will stop recycling altogether”* (respondent 5), and *“it will create a lot of confusion and mistrust”*. Nevertheless, when asked whether their own recycling habits will change after receiving this contradictory information, they all state that they themselves will continue their prior recycling habits, regardless. Which again could just be a variation of social desirability bias in which they overestimate their own sustainable behavior compared to their peers (Chung & Moore, 2003; Wheeler, Gregg & Singh, 2019).

That said, recent circumstances, such as the Norwegian government’s handling of significant events such as the recent pandemic, where they managed to make sense of an otherwise unsettling situation, enhanced the Norwegian citizens’ trust in government and their governance legitimacy (Christensen & Lærgreid, 2020). Thus, it could be argued that Norwegian citizens currently inhabit an even stronger loyalty towards the government. Moreover, this explains that despite contradicting evidence, they remain confident that the government has the right intention to not only withhold this information from the public, but also persist for a recycling system that actually brings the sustainable contribution for which was originally promised.

Young and green

Internationally, Norway wishes to play a significant role in peace negotiations, international aid, and environmental preservation and climate change prevention (Zajenkowska & Levin, 2019). As previously mentioned, Norway has been found to be “one of the most affluent, and seemingly “green”, liberal democracies of the world” (Witoszek, 2018). Thus, our respondents’ moral persistence to continue recycling despite receiving contradicting evidence, can also be argued to be a result of the Norwegian “green” values that make up the

Norwegian culture. However, despite this green impression that Norwegians so desperately hold onto, our consumption behaviors do not align. In fact, Norway has been found to both consume and throw more trash than almost any other country in Europe (Mullis, 2020; Olsen & Haavie).

Previous literature also shows that younger generations, such as generation Z and millennials, are found to be more eco-conscious and actively try to minimize their impact on the environment (Deloitte, 2023). A recent analysis shows that Nordic Youth, aged 13-30 years old, show considerably more concerns regarding climate change, loss of biodiversity, and overconsumption than older generations (Nordic Council of Ministers, 2019). Given the age range of our respondents, this aligns with their point of view that younger generations care more about recycling than older generations. However, expressing care for the environment, and actually implementing sustainable behaviors that make an impact for the environment, is two completely different things. Subsequent research on Norwegian consumers' sustainable behaviors, found that despite high environmental concern, there is a huge gap between attitude and behavior. In which, only 5 percent is shown to actually change their behaviors. Furthermore, they found no noticeable differences in sustainable behaviors between age groups (Christensen, 2021). However, younger generations are found to display larger differences between intended and current lifestyle than older generations. In which, the biggest perceived barrier for adopting a more sustainable lifestyle is cost-related (Global scan, 2019). This aligns with our respondents' responses, in which, when asked whether they are more or less likely to buy products made from recycled materials, the majority offer concerns about the cost of such products. For instance, some repeating responses are; *"yes, if the price was the same I would buy it"* (respondent 8), *"if the price was the same, I would definitely choose the recycled product"* (respondent 6), and *"as a student, I don't feel like spending money on that right now"* (respondent 10). This further cultivates itself in feelings of guilt and anxiety for their negative environmental impact (Global scan, 2019). This feeling of inadequate contribution towards sustainability could be a possible explanation for why our respondents so reluctantly hold on to their prior beliefs about recycling. In which, recycling is the one sustainable action that is seemingly "easy" and cost-efficient to implement, and thus enable

younger consumers to partake in the fight for sustainability without having to invest too much and/or change their lifestyles.

As these findings clearly state, whether it is unconscious habits, naive trust in our government, or feelings of guilt and anxiety that explains the reluctance to acknowledge the contradicting evidence of recycling, inconsistent information remains difficult for us humans to process. To conclude this research, we therefore tend to the famous words of Lippmann (1922); “We do not live in an objective world; we live in a perceived world”. Thus, we base our thoughts on our perception of the world, not the world itself.

6.0 Limitations

As any other academic research, this research also has its limitations. First and foremost, this study only regards the challenges and contradictory information around recycling of household waste such as food, plastics, glass, and metal. Meaning, that the potential factors that follow recycling of other types of waste such as electronics, textiles, and other toxic chemicals are not considered. Similarly, the emotional and affective reactions, as well as the attitudinal and behavioral implications are only subject to receiving contradicting information about recycling and does not transfer to that of other sustainable actions. Furthermore, caution should be executed when interpreting these results as the emotional responses, as well as the attitudinal and behavioral reported measures are exclusively limited to our sample of respondents and their age and implicational principles, and thus cannot be generalized to the larger population. Lastly, social desirability bias has been found to be a confounding variable in specifically environmental psychology research, in which people are attuned to even subtle cues of observation. The underlying reason being that the need for social acceptance is strong, and most people want to be seen as kind, smart, strong, and good citizens (Vesely & Klöckner, 2020). Thus, the reported answers could always run the risk of being subject to such social desirability bias.

7.0 Implications and future research proposal

Overall, this study has the potential to provide insights into the psychological, cognitive, and behavioral implications of contradictory information on consumers' perceptions, emotions, and actions related to recycling of household waste. Furthermore, it serves as a contribution to the research paradigm of green marketing and promotion of sustainable behaviors such as recycling. However, despite rendering a skeptical viewpoint of recycling efforts, as well as rationalization of such information from a consumer perspective, there are several future research directions from this study. Considering the major social and cultural influences for the processing and reception of this contradictory information about recycling, we propose future researchers to extend this research to other countries, in order to see if responses coincide or deviate from our study. Furthermore, it would be valuable to explore how contradicting evidence pertaining to other sustainable consumption behaviors, such as reducing transportation, limiting certain food groups, or minimizing overall plastic usage, would be perceived by consumers. Given the fact that recycling of household waste is deemed the most common sustainable practice one can adopt, it would be interesting to see especially how attitudinal and behavioral consequences would occur regarding other more "invasive" sustainable actions. This extended investigation will contribute to a more comprehensive understanding of the effects of contradictory information on sustainable consumption behaviors. Moreover, as Olson (2022), explicitly emphasizes in his review of the green marketing paradigm, there is substantial lack of research considering so-called rebound effects of sustainable behaviors. In which, regarding this subject would entail exploration of rebounding effects resulting from recycling. In other words, whether consumers will rationalize and/or excuse their "unsustainable" actions (e.g., excessive travel by planes, over-consumption, throwing excessive waste, buying plastic products etc.) by using recycling as their compensating action.

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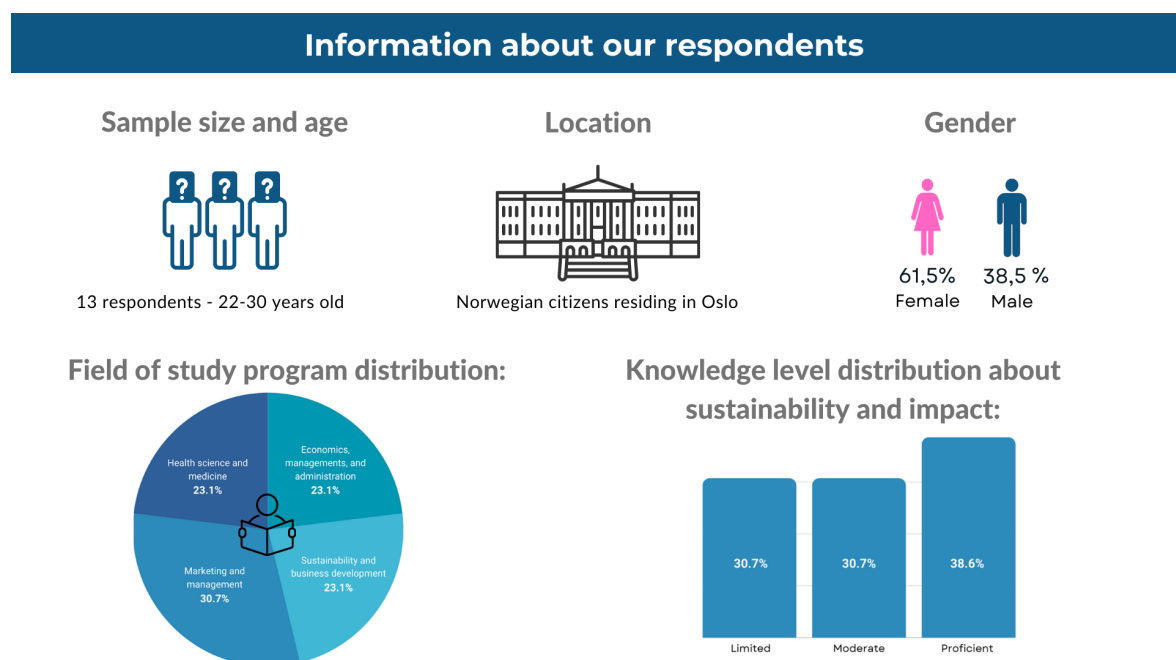
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9.0 Appendices

Appendix 1: Information about our respondents



Appendix 2: In-depth interview guideline in English

Introduction (Approx. 20 minutes)

<p>Introduction key components</p> <ul style="list-style-type: none"> - Thank you. - Name - Purpose - Confidentiality - Duration - How the interview will be conducted 	<p>Hello. I want to thank you for taking the time to meet with us today. My name is ____ and I would like to talk to you about your perspective on recycling of household waste.</p> <p>All responses will be kept confidential. This means that your responses will only be shared with research team members. Additionally, we will ensure that any information we include in our thesis does not identify you as the respondent.</p> <p>The interview should take about an hour. We would like to tape the session, so we don't miss out on any</p>
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	<p>of your comments. Is that okay? Since we are on tape, please be sure to speak up so we don't miss your comments.</p> <p>Are there any questions regarding what I just explained?</p> <p>If not, let's dive into it.</p>
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1. What comes to mind when you hear the word recycling?

This question aims to provide us with information about the respondents' perspective on recycling, such as their knowledge, attitudes, beliefs, and values.

Prompting information regarding this question in case the participant lacks knowledge.

→ **1a): What specific environmental benefits do you think that recycling brings/creates?**

→ **1b): Do you consider the burning of trash to create heat or electricity to be a type of recycling?**

2. From a scale from 1-10, (10 = extremely important to reducing human sourced damage to the environment, 1 = not important at all to reducing human sourced damage to the environment) how impactful do you perceive recycling to be for the environment?

Gives us a definitive measurement that precisely pinpoints to which extent the respondents believe recycling to have an impact on the environment.

3. How do you perceive your role as an individual consumer in terms of recycling?

This question aims to provide us with information about the respondents individual impact, personal responsibility (e.g. whether they believe that individual actions can make a difference in promoting sustainability), consumption behavior related to sustainability (e.g. whether they purchase eco-friendly products, reduce their use of plastic, or recycle, and/or motivation for recycling choices (e.g. whether they are driven by personal values or a desire to contribute towards sustainability).

Prompting information regarding this question in case the participant

lacks knowledge.

→ **3a):** How do you feel about cleaning and carefully sorting your trash so that it can be recycled properly?

→ **3b)** Do you look for products that are made from recycled materials when shopping?

→ **3c)** Are you more or less likely to buy a product if it is made with recycled materials?

- 4. From a scale from 1-10 (10 = I recycle everything that is possible to recycle at all times, 1 = I don't recycle at all) how would you place yourself in terms of consistent recycling behavior?**

Gives us a definitive measurement that precisely pinpoints how consistent the respondent's recycling behavior is.

- 5. Do you think most people have favorable or unfavorable attitudes towards recycling - why?**

Aims to get an overview to what extent the respondents' individual perception of recycling being a socially accepted behavior is, as well as capture the normative aspect of recycling.

Prompting information regarding this question in case the participant lacks knowledge.

→ **5a)** In general (Worldwide)

→ **5b)** In Norway

- 6. Where do you usually obtain information about recycling from?**

This question aims to give us insights into different sources that the respondents are familiar with, and give us insight into respondents' media consumption habits, level of interest and knowledge of recycling, and potential perceived barriers to recycling (e.g., such as confusion about recycling guidelines).

Prompting information regarding this question in case the participant lacks knowledge.

→ **6a):** newspapers/TV news

→ **6b):** Environmental groups

→ **6c):** Government sources

→ **6d):** Social media sites or advertisements

→ **6e):** School/work

→ **6f):** Friends/Family members

→ 6g): Which is your most important source of information about recycling?

7. Do you trust these sources of information?

This question aims to give us insight into the respondent's level of trust in specific sources of information.

Prompting information regarding this question in case the participant lacks knowledge.

→ 7a): Do you think most of your sources of information about recycling are favorable or critical of recycling?

→ 7b): Do you think they present both the positive and negative aspects of recycling?

8. What are the general attitudes towards recycling in your immediate environment (family/friends)?

This question aims to provide us with the respondent's individual immediate environment and how they possibly stand in relation to recycling habits and attitudes.

9. Do you consider yourself knowledgeable about recycling?

This question aims to provide us with the respondents individual level of knowledge about recycling, perhaps the specific environmental issues related to recycling (such as climate change, pollution, unsustainable of natural resources etc.), their knowledge of environmental issues (the extent of their understanding of the causes and consequences of those issues) and their personal actions related to recycling.

Prompting information regarding this question in case the participant lacks knowledge.

→ 9a): Are you aware of the various recycling symbols on product packaging?

Introducing contradictory evidence (Approx. 25 minutes)

The following questions are based on recent well-respected academic and news sources regarding recycling. Where we will follow up respondents by asking them to explain some "inconvenient truths" about recycling.

"We will now ask your opinion about some issues regarding the recycling industry that are taken from well-respected academic and news sources"

10. What do you think happens to trash that is put in recycling bins after it is picked up by the trash collectors?

This question aims to investigate whether and/or how aware the respondents are in terms of the recycling process of household waste.

11. Many wealthy countries export their trash long distance to developing countries, and while the Norwegian government banned this practice in 2020, 80% of Norwegian household waste is still exported to other countries. Why do you think countries export trash?

This question aims to investigate whether the respondents are aware that most of the Norwegian household waste is exported out of the country, as well as their thoughts around this.

Prompting information regarding this question in case the participant lacks knowledge.

→ 11a): Do you think it is because it is cheaper to process trash in other countries? (In general, or in Norway)

→ 11b): Do you think it is easier to cheat regarding what actually happens to the trash? (i.e., out-of-sights, out-of-mind).

→ 11c): Do you think other countries have more expertise, efficiency (economies of scale), and infrastructure (i.e., incinerators, sophisticated trash sorting equipment) in processing trash?

- *In Norway we exported 1,908,191 tons of reportable waste in 2020 (Miljødirektoratet, 2020).*
- *Moreover, we export approx. 80% of our waste where 68% is exported to Sweden (Miljødirektoratet, 2020; Handelens Miljøfond, 2020).*
- *E.g., the plastic we export to Sweden is mixed with plastic from both Denmark and Germany that makes it incredibly difficult to trace what actually happens to our plastic. There is also currently no requirement for third-party monitoring to check what actually happens to our plastic (Olsen & Haavie, 2020).*
- *Since Norway is a small country, it is often not profitable to build its own treatment facilities (Miljødirektoratet, 2022).*
- *Norwegian facilities do not have sufficient incineration capacity for all the residual waste that is generated. Therefore, much of the residual waste is exported to Sweden, where more of the*

*energy in the waste is utilized as district heating
(Miljødirektoratet, 2022).*

12. What do you think is the economic and environmental impact of shipping trash long-distances?

This question aims to determine whether and/or to which degree the respondents are aware that such transport is costly and emits emissions.

Prompting information regarding this question in case the participant lacks knowledge.

→ 12a): Do you think shipping trash to other countries increases or decreases recycling costs?

→ 12b): Do you think shipping trash to other countries increases or decreases the environmental benefits of recycling?

13. Do you know of any countries that have now stopped accepting trash from other countries?

This question aims to determine whether the respondents are aware of countries like China, that have stopped accepting trash.

14. Why do you think some countries, like China, have stopped accepting trash from other countries?

This question aims to give us several insights into the respondents' individual beliefs, as well as knowledge, about the recycling industry. Additionally, their emotional reaction to this information, such as whether they are aware, skeptical, or indifferent about the information.

Prompting information regarding this question in case the participant lacks knowledge.

→ 14a): Do you think they would have stopped accepting foreign trash if it was profitable to recycle?

→14b): Do you think they would have stopped accepting foreign trash if processing it was environmentally friendly for their country?

→ 14c): Do you think they would have stopped accepting foreign trash if processing it created good jobs for their economy?

15. How do you think the decision of several low-cost countries such as

China to stop accepting foreign trash has impacted the recycling industry?

This question aims to determine the respondents' individual knowledge about the environmental impacts of trash bans such as the recent one from China.

Prompting information regarding this question in case the participant lacks knowledge.

→ 15a): Has this decision increased or decreased the costs of recycling trash?

→ 15b): Has this decision increased or decreased the proposition of trash that gets recycled (versus burned or landfilled)?

- *The volume of waste exported from richer nations to developing nations has grown more than 10 times as much in twenty years, making the massive amounts impossible to handle due to poor waste management systems.*
- *China has over the years experienced sufficient economic growth and does not see the need to be a part of the garbage goods industry anymore. Furthermore, the amount of trash from richer nations makes it extremely difficult to handle.*
- *Developing countries such as Sri Lanka, are now re-shipping containers of trash back to richer nations such as the U.S., and the UK, because the trash is either not recyclable or too much compared to what they asked for (Rapoza, 2020).*

16. Approximately, what percentage of plastic waste from wealthy countries such as Norway do you think is actually recycled?

This question aims to give us insights into the respondents' individual beliefs, as well as knowledge, about the recycling industry, more specifically recycling of plastic.

17. The correct answer to the previous question is approximately 5% of plastic waste is recycled, why do you think it is not higher?

This question aims to give us insights into the respondents' individual beliefs, as well as knowledge, about the recycling industry, more specifically recycling of plastic. As well as their emotional reactions to this information, such as surprise, skepticism or indifference.

Prompting information regarding this question in case the participant lacks knowledge.

→ 17a) Do you think it could be because it is too difficult/expensive

to sort the many types of plastic?

→ **17b): Is it because plastic degrades and can become toxic when recycled?**

→ **17c): Is it because recycled plastics are not hygienic enough to be used for food packaging?**

→ **17d): Is it because the market for plastic resin from recycled plastics is not very profitable?**

- *There are now thousands of types of plastic, and none of them can be melted down together. This makes plastic expensive and difficult to collect and sort (Sullivan, 2022).*
- *Furthermore, plastic degrades after one or two uses, and becomes more toxic the more it is reused (Sullivan, 2022).*
- *Due to hygienic aspects reused plastic materials cannot become food packaging and is thus usually turned into sorts of hard plastic. However, the sorting facilities are made to handle soft plastic, and are therefore not equipped to further recycle hard plastic (Olsen & Haavie, 2020). In other words, in the best-case scenario the plastic is reused once before it ends up in landfills after all.*

18. Do you think that recycled materials, such as recycled plastic, recycled paper and recycled glass are generally cheaper or more expensive than equivalent virgin materials (i.e., made from newly produced raw materials)?

This question aims to determine whether the respondents are aware of the high costs of recycled materials.

Prompting information regarding this question in case the participant lacks knowledge.

- *Recent research found that no plastic meets the threshold to be called "recyclable". Set standards state that plastic must have a recycling rate of 30%; no plastic has ever been recycled and reused close to that rate. There are now thousands of different types of plastic, and none of them can be melted down together. Plastic also degrades after one or two uses. In fact, the more plastic is reused the more toxic it becomes (Sullivan, 2022). Thus, a soda bottle that is anticipated to be recycled, is either burned or thrown in our oceans (The New York Times, 2019).*
- *The amount of plastic actually turned into new things has fallen to new lows of around 5 %, and expected to drop further as more plastic is produced (Greenpeace, 2022)*

- Only 62% of plastic waste from households is suitable for recycling (Handelens Miljøfond, 2020)
- It is significantly cheaper to incinerate plastic than to recycle it (Olsen & Haavie, 2020).

Prompting information regarding this question in case the participant lacks knowledge.

If they don't address these issues in their Q18 is cheaper:

→ **18a): Do you think it could be because trash is "free"?**

→ **18b): Is it because the cost of virgin materials is rising?**

→ **18c): Is it because low-cost countries can recycle trash cheaply?**

Follow up if the respondents want to know the right answer:

“The correct answer to the previous question is that recycled materials are generally more expensive than virgin equivalents”.

- In 2019 recycled PET became more expensive than virgin PET, removing the economic incentive to use recycled PET in remanufactured materials.
- The price of producing recycled PET (a common type of plastic used to make drink bottles), is twice as expensive as using virgin PET. (Recycled PET flakes US\$1,000 a tonne and virgin PET US\$500-600 a tonne).
- The price of producing recycled HDPE (High density polyethylene, used for many types of plastic packaging) is twice as expensive as using virgin HDPE. Accounting for processing and transport. (Recycled HDPE approx. US\$1 per pound and virgin HDPE approx. 50 cents per pound (Staub, 2019).

19. Why do you think that recycled materials, such as recycled plastic, recycled paper and recycled glass, are often more expensive than virgin materials?

This question aims to give us several insights into the respondents' individual beliefs, as well as knowledge, about the recycling of materials. Additionally, their emotional reaction to this information, such as whether they are aware, skeptical, or indifferent about the information.

Prompting information regarding this question in case the participant lacks knowledge.

If they don't address these issues as more expensive:

→ 19a): Do you think it is because sorting trash is more difficult than expected?

→ 19b): Do you think it is because low-cost countries have stopped accepting foreign trash?

→ 19c): Do you think it is because trash needs to be shipped long distances?

→ 19d): What do you think are the consequences of this development for the recycling industry?

20. Has this information regarding the recycling industry changed your viewpoint of the financial and environmental impacts of recycling?

This question aims to determine whether the presented information has changed the respondents' predisposition of the financial and environmental impacts of recycling household trash.

21. Why do you think governments, environmental groups, and the media continue to push recycling when it has proven to be much more costly and less environmentally friendly as hoped?

This question aims to give us insight into how the participants process the contradicting evidence above, as well as their thoughts as to why recycling continues to be a highly promoted sustainability action. Furthermore, whether the information above has elicited any emotional reactions such as distrust in the government, confusion, or indifference.

Prompting information regarding this question in case the participant lacks knowledge.

→ 21a): *They have a commercial interest in keeping the recycling activities going.*

→ 21b): *Government officials/environmentalists are biased.*

→ 21c): *Government officials/environmentalists are basing their policies on feelings rather than facts.*

→ 21d): *Talking about the bad points would reduce recycling efforts for the parts that make good environmental sense such as metal recycling*

22. Why do you think governments, environmental groups, and the media fail to present the downsides or problems with recycling

This question aims to determine whether the respondents understand the bias or self-interest of these groups to continue with recycling, as well as their thoughts around this.

Prompting information regarding this question in case the participant lacks knowledge.

→ 22a): They have a commercial interest in keeping the recycling activities going.

→ 22b): Government officials/environmentalists are biased.

→ 22c): Government officials/environmentalists are basing their policies on feelings rather than facts.

→ 22d): Talking about the bad points would reduce recycling efforts for the parts that make good environmental sense such as metal recycling

- *“Recycling is actually propaganda we’ve been spoon-fed since we were kids in commercial after commercial. Who is beyond a lot of this messaging? The industry that produces plastic and the retailers who sell it to us. And it makes perfect sense that they want to trick us into thinking we can use as much plastic as we want so long as we recycle. Why not pass the responsibility for a big corporate mess onto individuals.” (The New York Times, 2019)*
- *After years of efforts by the government, environmentalists, and industry to encourage trash recycling, it has become one of the most popular environmental behaviors with 84% of Norwegian consumers saying they regularly recycle (Olsen & Haavie, 2020). Unfortunately, the benefits of recycling such as reduced greenhouse gas emissions and use of natural resources, and profits from reusing the paper, metals, plastics from thrown out trash has been much less than promised (Østgårdsgjelten, Valvik & Bjørnstad, 2015). For example, the previously estimated Co2 emissions savings ensured by recycled plastics is calculated through the assumption that the plastics are actually being recycled. However, only about 5% of all plastics is currently recycled, in large part because it is very difficult and expensive to sort (Sullivan, 2022).*

Finisher (Approx. 15 minutes)

23. Do you perceive this contradicting evidence of recycling as a problem? If so, why? If not, why not?

This question aims to give us insights into how the respondents evaluate the conflicting information presented for them (e.g., critical, indifferent).

24. Do you think that your consumption as well as recycling waste beliefs will change after being presented with this contradictory information? If yes, why? If not, why?

This question aims to give us insights into the respondents' cognitive reception of such contradicting information (e.g., their willingness to adapt to the new information or be indifferent to the new information).

25. Do you think there are any potential behavior changes in terms of your recycling habits after being presented with this information? If yes, why? If not, why?

This question aims to give us insights into the respondent's likelihood of changing their behaviors in response to the new information and their attitudes toward the practice of recycling.

26. Do you perceive any new barriers or constraints in terms of your impact on sustainability after being presented with this information?

This question aims to give us insights into whether the respondents perceive any new barriers or constraints on their impact on sustainability after the presented contradictory information.

27. What emotions do you experience after being presented with this contradictory information?

This question aims to give us insight into what emotions (Such as joy, anger, fear, sadness, surprise etc.) the respondents experience after being presented with the contradictory information.

<p>Closing key components</p> <ul style="list-style-type: none">- Additional comments- Next step- Thank you	<p>Is there anything more you would like to add? If not, we are done with the interview. I would like to thank you for participating in this interview. The research team will write a transcript of the interview and it will be available to you to verify.</p> <p>Thanks again and have a great rest of the day/evening.</p>
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Appendix 3: In-depth interview guideline in Norwegian

Introduksjon (Ca. 20 minutter)

1. Hva tenker du på når du hører ordet resirkulering?

Forespør informasjon om dette spørsmålet i tilfelle deltakerne mangler kunnskap.

→ 1a): Hvilke spesifikke miljøfordeler tror du resirkulering gir/skaper?

→ 2b): Betrakter du forbrenning av søppel for å skape varme og elektrisitet som en form for resirkulering?

2. På en skala fra 1-10, (1 = ikke viktig i det hele tatt for å redusere skade på miljøet fra menneskelig aktivitet, 10 = ekstremt viktig for å redusere skade på miljøet fra menneskelig aktivitet) hvor stor innvirkning oppfatter du resirkulering å ha på miljøet?

3. Hvordan oppfatter du din rolle som forbruker når det gjelder resirkulering?

Forespør informasjon om dette spørsmålet i tilfelle deltakerne mangler kunnskap.

→ 3a): Hvordan føler du det når du må rydde og sortere søppelet ditt slik at det kan resirkuleres riktig?

→ 3b): Leter du etter produkter som er laget av resirkulerte materialer når du handler?

→ 3c): Er du mer eller mindre tilbøyelig til å kjøpe et produkt hvis det er laget av/med resirkulerte materialer?

4. På en skala fra 1-10 (10 = Jeg resirkulerer alt som er mulig å resirkulere til enhver tid, 1 = Jeg resirkulerer ikke i det hele tatt), hvordan vil du plassere deg selv når det gjelder din resirkulerings atferd?

5. Tror du de fleste mennesker har en positiv eller negativ holdning til resirkulering - hvorfor?

Forespør informasjon om dette spørsmålet i tilfelle deltakerne mangler kunnskap.

→ 5a) Generelt (I hele verden)

→ 5b) I Norge

6. Hvor pleier du å få informasjon om resirkulering fra?

Forespør informasjon om dette spørsmålet i tilfelle deltakerne mangler kunnskap.

→ 6a): aviser / TV-nyheter

→ 6b): Miljøgrupper

→ 6c): Informasjon fra regjeringen

→ 6d): Sosiale medier eller annonser

→ 6e): Skole / arbeid

→ 6f): Venner / familiemedlemmer

→ 6g): Hva er din viktigste kilde til informasjon om resirkulering?

7. Stoler du på disse informasjonskildene?

Informasjon som kan hjelpe deltakeren i tilfelle manglende kunnskap.

→ 7a): Tror du de fleste av dine informasjonskilder om resirkulering er positive eller kritiske til resirkulering?

→ 7b): Tror du de presenterer både de positive og negative aspektene ved resirkulering?

8. Hvordan er de generelle holdningene til resirkulering i ditt nærmiljø (familie/venner)?

9. Anser du deg selv som kunnskapsrik om resirkulering?

Informasjon som kan hjelpe deltakeren i tilfelle manglende kunnskap.

→ 9a): Er du klar over de ulike resirkulering symbolene på produkt forpakninger?

Introduksjon av motstridende bevis (Ca. 25 minutter)

10. Hva tror du skjer med søppelet som kastes i resirkulerings-bøtter etter at det er plukket opp av søppelbiler?

11. Mange rike land eksporterer søppelet sitt til utviklingsland, og selv om den norske regjeringen forbød denne praksisen i 2020, blir fortsatt 80% av det norske husholdningsavfallet eksportert til andre land. Hvorfor tror du land eksporterer søppelet sitt?

Informasjon som kan hjelpe deltakeren i tilfelle manglende kunnskap.

→ 11a): Tror du det er fordi det er billigere å behandle søppel i andre land?

→ 11b): Tror du det er lettere å jukse med hva som faktisk skjer med søppelet? (dvs. ut av syne, ut av sinn).

→ 11c): Tror du andre land har mer ekspertise, effektivitet (stordriftsfordeler) og infrastruktur (dvs. forbrenningsanlegg, sofistikert avfallssortering utstyr) når det gjelder å behandle søppel?

12. Hva tror du er den økonomiske og miljømessige påvirkningen av å frakte avfall over lange avstander?

Informasjon som kan hjelpe deltakeren i tilfelle manglende kunnskap.

→ 12a): Tror du at å sende søppel til andre land øker eller reduserer kostnadene for resirkulering? (Generelt og i Norge)

→ 12b): Tror du at å sende søppel til andre land øker eller reduserer miljøfordelene ved resirkulering?

13. Vet du om noen land som nå har sluttet å akseptere søppel fra andre land?

14. Hvorfor tror du noen land, som Kina, har sluttet å akseptere søppel fra andre land?

Informasjon som kan hjelpe deltakeren i tilfelle manglende kunnskap.

→ 14a): Tror du de ville ha sluttet å akseptere søppel fra andre land hvis det var lønnsomt å resirkulere?

→ 14b): Tror du de ville ha sluttet å akseptere søppel fra andre land hvis behandlingen var miljøvennlig for deres land?

→ 14c): Tror du de ville ha sluttet å akseptere søppel fra andre land hvis behandlingen skapte gode jobber for økonomien deres?

15. Hvordan tror du at beslutningen fra lavkostland, som Kina, om å slutte å akseptere søppel fra flere land har påvirket gjenvinningsindustrien?

Informasjon som kan hjelpe deltakeren i tilfelle manglende kunnskap.

→ 15a): Har denne beslutningen økt eller redusert kostnadene for resirkulering av avfall?

→ 15b): Har denne beslutningen økt eller redusert andelen av søppel som blir gjenvunnet (i motsetning til å brennes eller deponeres)?

16. Omtrent hvor stor andel av plastavfall fra velstående land som Norge tror du faktisk blir resirkulert?

17. Riktig svar på det forrige spørsmålet er omtrent 5% av plastavfallet som blir resirkulert. Hvorfor tror du ikke tallet er høyere?

Informasjon som kan hjelpe deltakeren i tilfelle manglende kunnskap.

→ 17a): Tror du det kan være fordi det er for vanskelig/dyrt å sortere de mange forskjellige typer plast?

→ 17b): Er det fordi plast brytes ned og kan bli giftig når den blir resirkulert?

→ 17c): Er det fordi resirkulerte plastmaterialer ikke er hygieniske nok til å brukes til matemballasje?

→ 17d): Er det fordi markedet for plastharpiks fra resirkulert plast ikke er veldig lønnsomt?

18. Tror du at resirkulerte materialer, som resirkulert plast, resirkulert papir og resirkulert glass generelt sett er billigere eller dyrere enn tilsvarende jomfruelige materialer (dvs. laget av nyproduserte råvarer)?

Hvis de ikke nevner disse problemene i spørsmål 18 om at det er billigere:

→ 18a): Tror du det kan være fordi søppel er "gratis"?

→ 18b): Er det fordi prisen på jomfruelige materialer stiger?

→ 18c): Er det fordi lavkostland kan resirkulere søppel billig?

19. Hvorfor tror du at resirkulerte materialer, som resirkulert plast, resirkulert papir og resirkulert glass, ofte er dyrere enn jomfruelige materialer?

Hvis de ikke nevner disse problemene i spørsmål 18 om at det er dyrere:

→ 19a): Tror du det skyldes at sortering av søppel er vanskeligere enn forventet?

→ 19b): Tror du det skyldes at lavkostland har sluttet å akseptere utenlandsk søppel?

→ 19c): Tror du det skyldes at søppel må fraktes over lange avstander?

→ 19d): Hva tror du er konsekvensene av denne utviklingen for gjenvinningsindustrien?

20. Har denne informasjonen om resirkulering industrien endret ditt syn på de økonomiske og miljømessige konsekvensene av å resirkulere?

21. Hvorfor tror du at regjeringen, miljøgrupper og media fortsetter å fremme resirkulering når det har vist seg å være mye dyrere og mindre miljøvennlig enn håpet?

Følgende informasjon gis til deltakeren dersom de mangler

kunnskap:

→ 21a): De har en kommersiell interesse av å fortsette resirkulering aktivitetene

→ 21b): Regjeringsansatte/miljøvernere er partiske

→ 21c): Regjeringsansatte/miljøvernere baserer politikken sin på følelser heller enn fakta

→ 21d): Å fortelle om de negative sidene ville redusere innsatsen for resirkulering av de delene som gir god miljømessig mening, som for eksempel resirkulering av metall.

22. Hvorfor tror du regjeringen, miljøgrupper og media ikke presenterer ulempene eller problemene med resirkulering?

Følgende informasjon gis til deltakeren dersom de mangler kunnskap:

→ 22a): De har en kommersiell interesse av å fortsette resirkulering aktivitetene

→ 22b): Regjeringsansatte/miljøvernere er partiske

→ 22c): Regjeringsrepresentanter og miljøvernere baserer politikken sin på følelser heller enn fakta.

→ 22d): Å fortelle om de negative sidene ville redusere innsatsen for resirkulering av de delene som gir god miljømessig mening, som for eksempel resirkulering av metall.

Avslutning (Ca. 10 minutter)

23. Opplever du denne motstridende informasjonen om resirkulering som et problem? Hvis ja, hvorfor? Hvis nei, hvorfor ikke?

24. Tror du at dine forbruks- og resirkuleringsholdninger vil endre seg etter å ha blitt presentert med denne motstridende informasjonen? Hvis ja, hvorfor? Hvis ikke, hvorfor ikke?

25. Tror du det er noen potensielle endringer i atferd når det gjelder din resirkuleringsvaner etter å ha blitt presentert med denne informasjonen? Hvis ja, hvorfor? Hvis ikke, hvorfor ikke?

26. Opplever du noen nye hindringer eller begrensninger når det

gjelder din påvirkning på bærekraft etter å ha blitt presentert med denne informasjonen?

27. Hvilke følelser sitter du igjen med etter å ha blitt presentert denne motstridende informasjonen?